

## PATENT ABSTRACTS OF JAPAN

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### (54) COMPOSITION FOR ORAL USE

#### (57)Abstract:

PROBLEM TO BE SOLVED: To obtain a composition for oral use capable of improving form retention by gelling, excellent in form retention and sense of use even in low water content by including a polyethylene glycol having specific molecular weight.

SOLUTION: This composition comprises (A) a polyethylene glycol having average molecular weight of 2000-20,000 and (B)  $\leq 5$  wt.% of water. One or more kind of the components A are preferably contained in amount of 0.1-10 wt.%. Besides this, satisfactory physical properties are obtained by jointly using a nonionic surfactant such as a polyglycerin derivative, a fatty acid ester of sugar, etc., having 3-15 of HLB (obtained by Griffin's formula) and making the composition capable of adjusting the gel strength at low temperature. A heat generator such as anhydrous zeolite, etc., a liquid vehicle such as glycerin, etc., a thickener such as a water-soluble polymer and silicic anhydride, etc., a polishing agent, a medical agent, a sweetener, a spice, a preservative, a bleaching agent, humectants, a binder, etc., are properly formulated to the composition.

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### LEGAL STATUS

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DETAILED DESCRIPTION

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## [Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention is excellent in firmness and a feeling of use is related with the good constituent for the oral cavities.

[0002]

[Description of the Prior Art] In order to adjust the viscosity of toothbrushing of the oil base conventionally, the polyethylene glycol of molecular weight 400-2000, a gelling agent, a thickener, etc. are used (JP,52-54038,A). However, in the constituent for the oral cavities with a low moisture content, such gelation ability is not fully demonstrated but there is a problem of spoiling firmness and a feeling of use.

[0003]

[Problem(s) to be Solved by the Invention] The purpose of this invention is to offer the constituent for the oral cavities excellent in firmness or a feeling of use, even if a moisture content is low.

[0004]

[Means for Solving the Problem] this invention persons found out that it could gel and firmness could be raised by using the polyethylene glycol of specific molecular weight in the constituent for the oral cavities with few moisture contents. Moreover, when using together the specific nonionic surface active agent, the gel strength under the low temperature by the polyethylene glycol was adjusted, and it found out that good physical properties were acquired.

[0005] A mean molecular weight exceeds 2000, and this invention contains 20000 or less polyethylene glycol, and offers the constituent for the oral cavities whose moisture content is 5 or less % of the weight.

[0006]

[Embodiment of the Invention] that by which the polyethylene glycol used by this invention is used for the usual constituent for the oral cavities -- it is -- average molecular weight -- 2000 -- exceeding -- 20000 or less -- desirable -- 3000-10000 -- it is the thing of 4000-6000 especially preferably. Firmness sufficient in 2000 or less thing is not acquired, but average molecular weight spoils the feeling of a knockout of the paste from a tube in the thing exceeding 20000 at the time of low temperature 5 degrees C or less. As for a polyethylene glycol, it is desirable to be able to use one or more sorts and to blend further one to 3% of the weight 0.5 to 5% of the weight especially 0.1 to 10% of the weight during [ all ] a presentation.

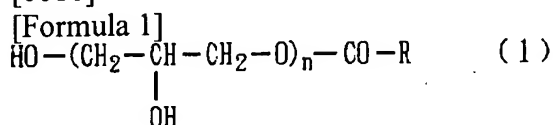
[0007] The moisture content of the constituent for the oral cavities of this invention is 3 or less % of the weight preferably 5 or less % of the weight.

[0008] To the constituent for the oral cavities of this invention, further, HLB 3-15 and when it can blend the nonionic surface active agent of HLB 5-10 preferably and a polyethylene glycol is blended, it can hold down that a constituent becomes hard at low temperature. Here, HLB is calculated by the formula of Griffin.

[0009] As such a nonionic surface active agent, a polyglycerin derivative and sucrose fatty acid ester are

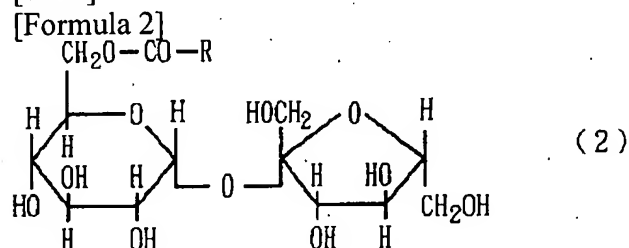
desirable. Specifically as a polyglycerin derivative, it is a general formula (1).

[0010]



[0011] What is expressed with (R shows the aliphatic series radical of the saturation of carbon numbers 8-34 or partial saturation among a formula, and n shows the number of 1-20) is mentioned. Among a formula, as R, the alkyl group or alkenyl radical of carbon numbers 11-17 is desirable, and, as for n, 2-10 are desirable. Moreover, as sucrose fatty acid ester, it is a general formula (2).

[0012]



[0013] What is expressed with (R shows the same semantics as the above among a formula) is mentioned. As R, the alkyl group or alkenyl radical of carbon numbers 10-20 is desirable among a formula.

[0014] As for a nonionic surface active agent, it is desirable to be able to use one or more sorts and to blend further 0.5 to 3% of the weight 0.1 to 5% of the weight especially 0.01 to 10% of the weight during [ all ] a presentation.

[0015] Moreover, a heating element can be blended with the constituent for the oral cavities of this invention, and the warm temperature effectiveness can also be acquired to it. As a heating element, the pyrogen which generates heat by the hydration reaction within the oral cavity is mentioned. An anhydrous zeolite, sulfuric anhydride magnesium, sodium metaphosphate, a calcium chloride, a dextrin, etc. are preferably [ especially a heating element / using so that 38-50 degrees C of generating temperature may become 40-45 degrees C ], and specifically mentioned. As for a heating element, it is desirable to be able to use one or more sorts and to blend 20 to 30% of the weight especially zero to 50% of the weight during [ all ] a presentation.

[0016] the constituent for the oral cavities of this invention -- as a liquefied vehicle -- a glycerol, propylene glycol, triglyceride, and a jig resaler -- the id, a liquid paraffin, etc. can be blended. As for these liquid vehicles, it is desirable to be able to use one or more sorts and to blend 40 to 60% of the weight especially 30 to 80% of the weight during [ all ] a presentation. As for the constituent for the oral cavities of this invention, it is desirable to make it the dosage forms of the shape of gel, a liquid, and a paste using these liquefied vehicles.

[0017] Moreover, thickeners, such as a water soluble polymer and a thickening nature silica (silicic acid anhydride), are blended with the constituent for the oral cavities of this invention, and viscosity can be adjusted to it. As a water soluble polymer, a carboxymethyl cellulose, xanthan gum, a dextrin, a carrageenan, hydroxypropylcellulose, hydroxyethyl cellulose, etc. are mentioned, for example. Xanthan gum is [ among these ] the most desirable when a moisture content is 5 or less % of the weight like this invention. It is desirable to adjust using these, so that the HERIPASU mold viscosity of the constituent in 25 degrees C may serve as especially 6000 - 10000 dPa-s 5000 to 15000 dPa-s. In this invention, HERIPASU mold viscosity is the value measured using B8 R-form viscometer with a helical stand controller (Rotor E, rotational-speed 2.5 r/min).

[0018] The component usually further used for the constituent for the oral cavities, for example, other surfactants, an abrasives, a drug effect agent, sweetners, perfume, a preservative, a whitening agent, a

wetting agent, a binder, etc. can be blended with the constituent for the oral cavities of this invention in the range which does not spoil the effectiveness of this invention, and it is manufactured by the usual approach.

[0019]

[Effect of the Invention] The constituent for the oral cavities of this invention is excellent in firmness, and its feeling of use is good.

[0020]

[Example] The paste of the presentation shown in example 1 table 1 was manufactured with the conventional method, and the tooth powder tube was filled up with the 90g. The HERIPASU mold viscosity in 25 degrees C of the obtained paste and 5 degrees C was measured, and the following criteria estimated 25 more degrees C firmness and a 5-degree C feeling of a knockout. A result is collectively shown in Table 1.

[0021] (The evaluation approach)

(1) HERIPASU mold viscosity : the viscosity of each paste saved at 5 degrees C or 25 degrees C on the 1st was measured using B8 R-form viscometer with a helical stand controller (Rotor E, rotational-speed 2.5 r/min, 1-minute measurement).

[0022] (2) Firmness : after saving each paste at 25 degrees C for 24 hours, 1g was carried on the gear-tooth brush, and the following criteria estimated the appearance of 1 minute after.

O; form hardly collapses and don't hang down from a gear-tooth brush.

Although \*\*, form collapses a little, it does not hang down from a gear-tooth brush.

x; form collapses and it hangs down from a gear-tooth brush.

[0023] (3) A feeling of a knockout : after saving each paste at 5 degrees C for 24 hours, the following criteria estimated the feeling of a knockout of the paste from a tube.

O; it can extrude easily.

\*\*, although it is a little hard, it can extrude.

x; it is hard and cannot extrude.

[0024]

[Table 1]

成 分 (重量%)	本 発 明 品				比 較 品		
	1	2	3	4	1	2	3
グリセリン	42.0	42.0	42.0	42.0	42.0	42.0	42.0
プロピレングリコール	24.0	24.0	24.0	25.0	25.0	25.0	25.0
ポリエチレングリコール 1000	—	—	—	—	—	—	3.0
ポリエチレングリコール 6000	3.0	3.0	3.0	3.0	—	—	—
カルボキシメチルセルロースナトリウム	0.5	0.5	0.5	0.5	0.5	0.5	0.5
炭酸カルシウム	20.0	20.0	20.0	20.0	20.0	20.0	20.0
シリカ	5.0	5.0	5.0	5.0	5.0	5.0	5.0
ラウリル硫酸ナトリウム	1.0	1.0	1.0	1.0	1.0	1.0	1.0
モノオレイン酸ポリグリセリル (HLB13)	3.0	—	—	—	—	3.0	—
モノラウリン酸ポリグリセリル (HLB10)	—	3.0	—	—	—	—	—
ショ糖ステアリン酸エステル (HLB5)	—	—	3.0	—	—	—	—
香料	1.0	1.0	1.0	1.0	1.0	1.0	1.0
精製水	調整	調整	調整	調整	調整	調整	調整
粘 度 (25℃ ; dPa·s)	8900	9160	7980	12000	3860	3280	4870
保形性 (25℃)	○	○	○	○	×	×	×
粘 度 (5℃ ; dPa·s)	20140	22680	17900	36000	11400	9200	14700
押し出し感 (5℃)	○	○	○	△	○	○	○

[0025] Toothbrushing of the presentation shown in two or less example was manufactured with the conventional method (HERIPASU mold viscosity 8920 dPa-s in 25 degrees C).

## [Table 2]

(Component) (% of the weight)

The acetic-acid dl-alpha-tocopherol 0.10 Benzethonium chloride 0.01 beta-glycyrrhetinic acid 0.01 Glycerol 40.00 Propylene glycol 21.00 Polyethylene glycol 4000 3.00 Mono-lauric-acid poly glyceryl (HLB10) 3.00 Saccharin sodium 0.20 Hydroxyethyl cellulose 0.20 Silicic acid anhydride 5.00 Calcium hydrogenphosphate 25.00 Sodium lauryl sulfate 1.00 Perfume 1.00 Purified water Tone \*\* [0026] Toothbrushing of the presentation shown in three or less example was manufactured with the conventional method (HERIPASU mold viscosity 6800 dPa-s in 25 degrees C).

## [Table 3]

(Component) (% of the weight)

Cetylpyridinium chloride 0.01 Mono-fluorophosphoric acid sodium 0.72 Glycerol 38.00 Propylene glycol 36.67 Polyethylene glycol 6000 1.00 Cane-sugar stearic acid ester (HLB3) 0.90 Saccharin sodium 0.20 Carboxymethyl cellulose 0.50 Anhydrous zeolite 20.00 Sodium lauryl sulfate 1.00 Perfume 1.00 [0027] Toothbrushing of the presentation shown in four or less example was manufactured with the conventional method (HERIPASU mold viscosity 9340 dPa-s in 25 degrees C).

## [Table 4]

(Component) (% of the weight)

The acetic-acid dl-alpha-tocopherol 0.10 Benzethonium chloride 0.01 Mono-fluorophosphoric acid sodium 0.68 Glycerol 32.00 Propylene glycol 29.00 Saccharin sodium 0.15 Carrageenan 0.40 Polyethylene-glycol 6000 1.00 Monostearin acid poly glyceryl (HLB8) 0.10 Cane-sugar palmitic-acid ester (HLB15) 5.00 Silicic acid anhydride 7.00 Calcium carbonate 20.00 Sodium lauryl sulfate 1.00 Perfume 1.00 Purified water Tone \*\* [0028] The dental cream of the presentation shown in five or less example was manufactured with the conventional method (HERIPASU mold viscosity 7260 dPa-s in 25 degrees C).

## [Table 5]

(Component) (% of the weight)

Cetylpyridinium chloride 0.01 beta-glycyrrhetinic acid 0.01 Triglyceride 37.00 Liquid paraffin 45.00 Crystalline cellulose 2.00 Silicic acid anhydride 10.00 Hydroxypropylcellulose 0.50 Polyethylene glycol 6000 2.00 Mono-oleic acid poly glyceryl (HLB9) 2.00 Perfume 1.00 Purified water Tone \*\* [0029] Each constituent for the oral cavities obtained in the examples 2-5 was excellent in firmness, and its feeling of use was good.

[Translation done.]